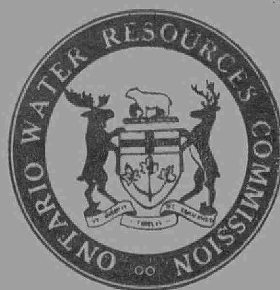


CA2 ON  
WR 610  
1969  
L35



*O.W.R.C.*  
*Water Pollution*  
*Survey*

THE  
ONTARIO WATER RESOURCES  
COMMISSION



WATER POLLUTION SURVEY

of the

TOWN OF LINDSAY

COUNTY OF VICTORIA

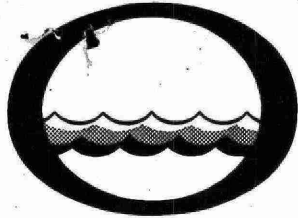
1969

### Copyright Provisions and Restrictions on Copying:

This Ontario Ministry of the Environment work is protected by Crown copyright (unless otherwise indicated), which is held by the Queen's Printer for Ontario. It may be reproduced for non-commercial purposes if credit is given and Crown copyright is acknowledged.

It may not be reproduced, in all or in part, for any commercial purpose except under a licence from the Queen's Printer for Ontario.

For information on reproducing Government of Ontario works, please contact ServiceOntario Publications at [copyright@ontario.ca](mailto:copyright@ontario.ca)



**Water management in Ontario**

Ontario  
Water Resources  
Commission

135 St. Clair Ave. W.  
Toronto 7, Ontario  
Tel. 365-6967

February 26, 1970.

Town of Lindsay,  
Town Hall,  
Lindsay, Ontario.

Attention: Mr. W. B. Bates,  
Clerk-Treasurer.

Gentlemen:

Re: Town of Lindsay  
Water Pollution Survey

We are pleased to provide council with a copy of a water pollution report based on a survey conducted in the Town of Lindsay during the week of September 15, 1969, by Commission staff.

The report notes that many of the problems noted in our previous report have been corrected but some still remain.

We trust that every effort will be made to correct the remaining problems as soon as possible.

Yours very truly,

JAC/jkc

*J. G. South*  
for L. G. South, P. Eng.,  
District Engineer,  
Division of Sanitary Engineering.

Mailing List

Town of Lindsay

Mr. W. B. Bates,  
Clerk-Treasurer,  
Town of Lindsay,  
Town Hall,  
Lindsay, Ontario.

Dr. Charlotte M. Horner,  
Medical Officer of Health and Director,  
Haliburton, Kawartha, Pine Ridge  
District Health Unit,  
Cobourg, Ontario.

Mr. R. J. Reynolds,  
Superintendent,  
Board of Water Commissioners,  
Town of Lindsay,  
Lindsay, Ontario.

Dr. J. K. Reynolds,  
Secretary to the Cabinet,  
Dept. of the Prime Minister,  
Queen's Park,  
Main Building,  
Parliament Buildings,  
Toronto, Ontario.

Honourable George A. Kerr,  
Minister,  
Department of Energy and Resources  
Management,  
Queen's Park,  
Toronto, Ontario.

Mr. E. A. Booth,  
Town Engineer,  
Town of Lindsay,  
Lindsay, Ontario.

Mr. G. Merryman,  
Plant Manager,  
Union Carbide Canada Limited,  
150 Colborne Street East,  
Lindsay, Ontario.

Mr. R. Glen Hodgson, M.P.P.,  
Electoral District of  
Victoria-Haliburton,  
P. O. Box 240,  
Haliburton, Ontario.

Mr. A. E. Walroth,  
District Engineer,  
Ontario Dept. of Lands and  
Forests,  
322 Kent Street West,  
Lindsay, Ontario.

Miss B. A. Weatherhead,  
Librarian,  
Dept. of Municipal Affairs,  
11th Floor,  
801 Bay Street,  
Toronto 5, Ontario.

Librarian, Brock University,  
St. Catharines, Ontario.  
Attn: Mr. Vespry

Librarian, University of Waterloo,  
Waterloo, Ontario.

CAGDON  
WR 610  
1969  
L35

THE  
ONTARIO WATER RESOURCES  
COMMISSION  
Report on a  
Water Pollution Survey  
of the  
TOWN OF LINDSAY  
in the  
COUNTY OF VICTORIA  
DIVISION OF SANITARY ENGINEERING  
DISTRICT ENGINEERS BRANCH  
September 18, 19, 1969

Report on  
WATER POLLUTION SURVEY  
of the  
TOWN OF LINDSAY

<u>INDEX</u>	<u>PAGE NO.</u>
INTRODUCTION	1
REVIEW OF PREVIOUS SURVEY (1964)	1
REVIEW OF LATEST RESULTS (1969)	2
SUMMARY	4
RECOMMENDATIONS	4
<u>APPENDICES</u>	
LABORATORY RESULTS	
SIGNIFICANCE OF LABORATORY ANALYSES	
MAP	

REPORT ON A  
WATER POLLUTION SURVEY  
of the  
TOWN OF LINDSAY

INTRODUCTION

During the week of September 15, 1969, investigations were made in the Town of Lindsay in order to assess what effect corrections made by the municipality and local industries had on the surface water quality.

In 1964 an initial survey was made of the water quality within the Town of Lindsay. The initial survey indicated that a considerable amount of raw sewage was being discharged to the Scugog River through the municipal storm sewer system. Wastes from several local industries were found to be gaining access to local watercourses.

A number of local officials were contacted during the time the investigation was being made. They included Mr. W. B. Bates, Clerk-Treasurer; Mr. Booth, Town Engineer; Mr. Wm. Hogle, Chief Public Health Inspector; and Mr. R. J. Reynolds, Superintendent, Board of Water Commissioners.

REVIEW OF PREVIOUS SURVEY (1964)

During the time that the previous survey was being carried out, the Scugog River water quality showed severe deterioration as it flowed through the town. The water quality

of the Scugog River above the town was generally satisfactory.

A tributary creek which flows into the Scugog River at Colborne Street and known locally as Sinister Creek was contaminated by both industrial and sanitary wastes. It was through this creek that the majority of industrial wastes discharges gained access to the Scugog River.

Unsatisfactory waste discharges were evident at three municipal storm sewers. These were designated sampling points, TS-156.23WR, TS-156.05W and TS-156.05W(E). It was reported that sewage from a sanitary sewer on Colborne Street was being diverted to the creek (Sinister Creek) due to a defective syphon arrangement.

Industrial wastes discharges of unsatisfactory quality was noted from two private outfalls along Sinister Creek. The wastes were reportedly from Schultz Die Casting Company Limited and Union Carbide, Visking Division.

#### Review of Latest Results

A tabulation of the sample results obtained during the investigations made in September 1969, along with the sample results obtained during the 1964 survey have been appended to this report. The significance of the laboratory analysis has also been included.

The 1969 sample results indicate that the Town of Lindsay was not having as great an adverse effect on the river as during the time of the initial survey. Several problem areas are, however, still evident from the sample results. The



water quality of the effluent from Sinister Creek shows good improvement but sanitary wastes appear to still be gaining access to this watercourse. The presence of sanitary wastes was indicated in the samples collected from municipal storm sewer outfalls numbered TS-156.23W and TS-155.97W. An adverse bacteriological sample was collected from the municipal storm sewer at Lindsay Street but the flow had little volume at the time of sampling. Evidence of unsatisfactory discharges to Sinister Creek was obtained in the samples collected from the outfalls from Turner and Seymour Limited and the Union Carbide Limited Plant, Visking Division. There appears to be sanitary wastes in the discharge from the Union Carbide Limited Plant.

Steps have been taken by Turner and Seymour to direct all waste discharges to the Town of Lindsay sanitary sewer system and no further discharges to the watercourse should occur.

The Union Carbide Company Limited has been discussing with the Division of Industrial Waste ways to provide better control and treatment of their wastes. A report on a study of treatment of the process wastes is expected shortly. A meeting will be held between the Division of Industrial Wastes and the officials of Union Carbide Limited to discuss the report and the company's future plans.

The municipal officials have taken steps to correct many of the problems which existed in the town. The local officials will need to investigate the storm sewer system for the sources of contamination detected in the storm sewer outfalls numbered TS-156.23W, TS-156.16W and TS-155.97W.

#### SUMMARY

A pollution survey was made in the Town of Lindsay during the week of September 15, 1969, in order to assess the water quality and the improvement in the water quality since the time of the initial survey in 1964.

Numerous problems were apparent as a result of the initial survey. Steps have been taken to correct many of the problems but some still remain. In general both the municipal officials and their counter parts in local industry, have shown an active interest in correcting the pollution problems once they have been made aware that a problem existed.

#### RECOMMENDATIONS

1. The municipal officials should continue to investigate for the sources of contamination to the municipal storm sewer system.
2. An investigation should be made by the officials of Union Carbide Limited to determine the sources of high coliform counts in their waste water.

/jkc

Prepared by:

  
J. A. Clarke,  
Technologist,  
Division of Sanitary Engineering.

## Significance of Laboratory Analyses

### Bacteriological Examination

The presence of coliforms indicates pollution from human or animal excrement, or from some non-faecal forms. The objective for surface water quality in Ontario is a maximum of 2400 organisms per 100 millilitres.

The OWRC Laboratories employ the Membrane Filter (MF) technique of examination to obtain a direct enumeration of coliform organisms. The Department of Health Laboratories use the Most Probable Number (MPN) enumeration and coliform counts are reported as Total Coliform Organisms (TC) and Faecal Coliform Organisms (FC).

### Sanitary Chemical Analyses

#### Biochemical Oxygen Demand (BOD)

Biochemical Oxygen Demand is reported in parts per million (ppm) and is an indication of the amount of oxygen required for the stabilization of decomposable organic or chemical matter in water. The completion of the laboratory test required five days, under the controlled incubation temperature of 20° Centigrade.

The OWRC objective for surface water quality is an upper limit of four (4) ppm.

#### Solids

The value for solids, expressed in parts per million (ppm) is the sum of the values for the suspended and the dissolved matter in the water. The concentration of suspended solids is

generally the most significant of the solids analyses with regard to surface water quality.

The effects of suspended solids in water are reflected in difficulties associated with water purification, depositions in streams and injury to the habitat of fish. Where suspended solids values are less than 20 ppm, laboratory difficulties are experienced and the turbidity is determined instead.

#### Anionic Detergents

The test for alkyl benzene sulphonate (ABS) and reported as anionic detergent is generally employed to indicate the presence of discharge of wastewater. The popular use of synthetic detergents for general cleaning purposes has resulted in the incidence of residual ABS in streams. As an objective, the ABS concentration should not exceed 0.5 ppm in water used for domestic purposes.

#### Alkalinity

The alkalinity of natural waters is caused by three major classes of materials which may be ranked in order of their effect on pH as follows: (1) hydroxides (2) carbonates and (3) bicarbonates and other salts of weak acids. The alkalinity of a water has little sanitary significance but is of importance in water, sewage and industrial waste treatment practices.

pH

The pH value, for practical purposes, refers to acidity of alkalinity, and is a measure of intensity rather than quality. The pH scale extends from zero (very acidic) to 14 (very alkaline), with the middle value of 7 corresponding to neutrality at 25° Centigrade. The pH of surface water should be in the range of 6.7 to 8.5.

Water Pollution Survey

TABLE I - Scugog River

Town of Lindsay

<u>Sample Point Number</u>	<u>Date</u>	<u>Description</u>	<u>5-Day BOD</u>	<u>Total</u>	<u>Solids Susp</u>	<u>Diss</u>	<u>Coliforms per 100 ml</u>	<u>A.B.S.</u>	<u>pH at Lab</u>	<u>Sulphate</u>
TS158.00	June24/64	Scugog River at upstream (south) limit of Lindsay	1.9	298	10	288	400			
	Sept18/69		3.0	230	10	220	200	0.1		
TS157.63	June24/64	Scugog River at Municipal Water Purification Plant	1.8	218	6	212	120			
	Sept18/69		2.0	250	20	230	580	0.1		
TS156.06	June24/64	Scugog River at Wellington Street bridge	1.6	424	11	413	152,000			
	Sept18/69		2.5	400	15	385	140,000	0.1		
TS155.57	June25/64	Scugog River at Denniston St. Cyanide = 0	8.8	508	32	476	130,000		8.1	236
	Sept19/69		Cyanide = 0 2.6	510	5	505	16,000	0.1	7.6	265
TS154.82	June24/64	Scugog River at Downstream (North) Limit of Lindsay Cyanide = 0	11.0	460	86	374	3,000		9.1	193
	Sept19/69		Cyanide = 0.6 8.5	640	15	625	420	0.1	8.2	300

All analyses except pH reported in ppm unless otherwise indicated.

Water Pollution Survey

TABLE II - Sinister  
Creek

Town of Lindsay

<u>Sample Point Number</u>	<u>Date</u>	<u>Description</u>	<u>5-Day BOD</u>	<u>Total</u>	<u>Solids</u>		<u>ABS</u>	<u>pH at Lab</u>	<u>Chrome</u>	<u>Sulphate</u>	<u>Coliform per 100 ml</u>
TSX155.80	June24/64	Mouth of Sinister Creek discharging to Scugog River at Colborne Street	13.0	2140	68	2072		7.2	3.2	1480	2,800
	Sept19/69	Cyanide = 0.8 Cyanide = 0.0	3.0	3600	10	3590	0.1	7.7	0.0	2600	700,000
TSX156.16	Sept19/69	Sinister Creek at St. Peter St.	12.0	5080	15	5065	0.1				10,000
TSX156.78	June24/64	Sinister Creek at Eastern Limit of Lindsay			N O F L O W						
	Sept19/69				N O F L O W						

All analyses except pH reported in ppm unless otherwise indicated

Water Pollution SurveyTABLE III - Municipal  
Storm Drainage OutfallsTown of Lindsay

Sample Point Number	Date	Description	5-Day BOD	Solids			Coliform per 100 ml	A.B.S.
				Total	Susp	Diss		
TS157.85D	June24/64	The "Big Ditch" draining to the Scugog River west of the Lindsay St. South Bridge		N O F L O W				
	Sept18/69		0.4	550	5	545	500	0.0
TS157.40D	June24/64	Mary St. ditch terminating on the west bank of the Scugog River		N O F L O W				
	Sept18/69			N O F L O W				
TS156.87D	June25/64	Glenelg St. - ditch terminating on the west bank of the Scugog River		N O F L O W				
	Sept18/69			N O F L O W				
TS156.86D	June25/64	Glenelg St. - ditch terminating on east bank of the Scugog River		N O F L O W				
	Sept18/69			N O F L O W				
TS156.76D	June25/64	Kawartha St. - ditch terminating on east bank of the Scugog River		N O F L O W				
	Sept18/69			N O F L O W				



TABLE III cont'd

Sample Point Number	Date	Description	5-Day BOD	Solids			Coliform per 100 ml	A.B.S.
				Total	Susp	Diss		
TS156.05W(W)	Sept19/69			INSIGINIFICANT FLOW				
TS156.05W(E)	June24/64	Municipal storm sewer discharging to west bank of river north of Wellington St. bridge		Submerged outlet - No samples collected but sewage reportedly is present.				
	Sept19/69			N O F L O W				
TS155.97W	Sept19/69	Municipal storm sewer discharging to west bank of river at Bond St.	0.6	400	5	375	560,000	0.1
TS155.58D	June24/64	Ditch from Denniston St. terminating near east bank of Scugog River		N O F L O W				
	Sept19/69			N O F L O W				

All analyses reported in ppm unless otherwise indicated

TABLE III cont'd

Sample Point Number	Date	Description	5-Day BOD	Solids			Coliform per 100 ml	A.B.S.
				Total	Susp	Diss		
TS156.61D	June25/64	Kent St. E. - ditch terminating on the east bank of the Scugog River		N O F L O W				
	Sept18/69			N O F L O W				
TS156.23WR	June24/64	Municipal storm sewer discharging to south bank of Scugog River east of Lindsay St. - (Near Brewers' Retail Store)	3.2	518	27	491	310,000	1.6
	Sept19/69		3.5	250	10	240	15,000,000	0.7
TS156.16W	Sept19/69	Municipal storm sewer discharging to south bank of Scugog River west of Lindsay Street					17,000	
TS156.06W	June24/64	Municipal storm sewer discharging to west bank of river south of Wellington St. Bridge		N O F L O W				
	Sept19/69			N O F L O W				
TS156.05W(W)	June24/64	Municipal storm sewer discharging to west bank of river north of Wellington St. bridge	2.2	362	6	356	80,000	

Water Pollution Survey

TABLE IV - Industrial  
Waste Outfalls

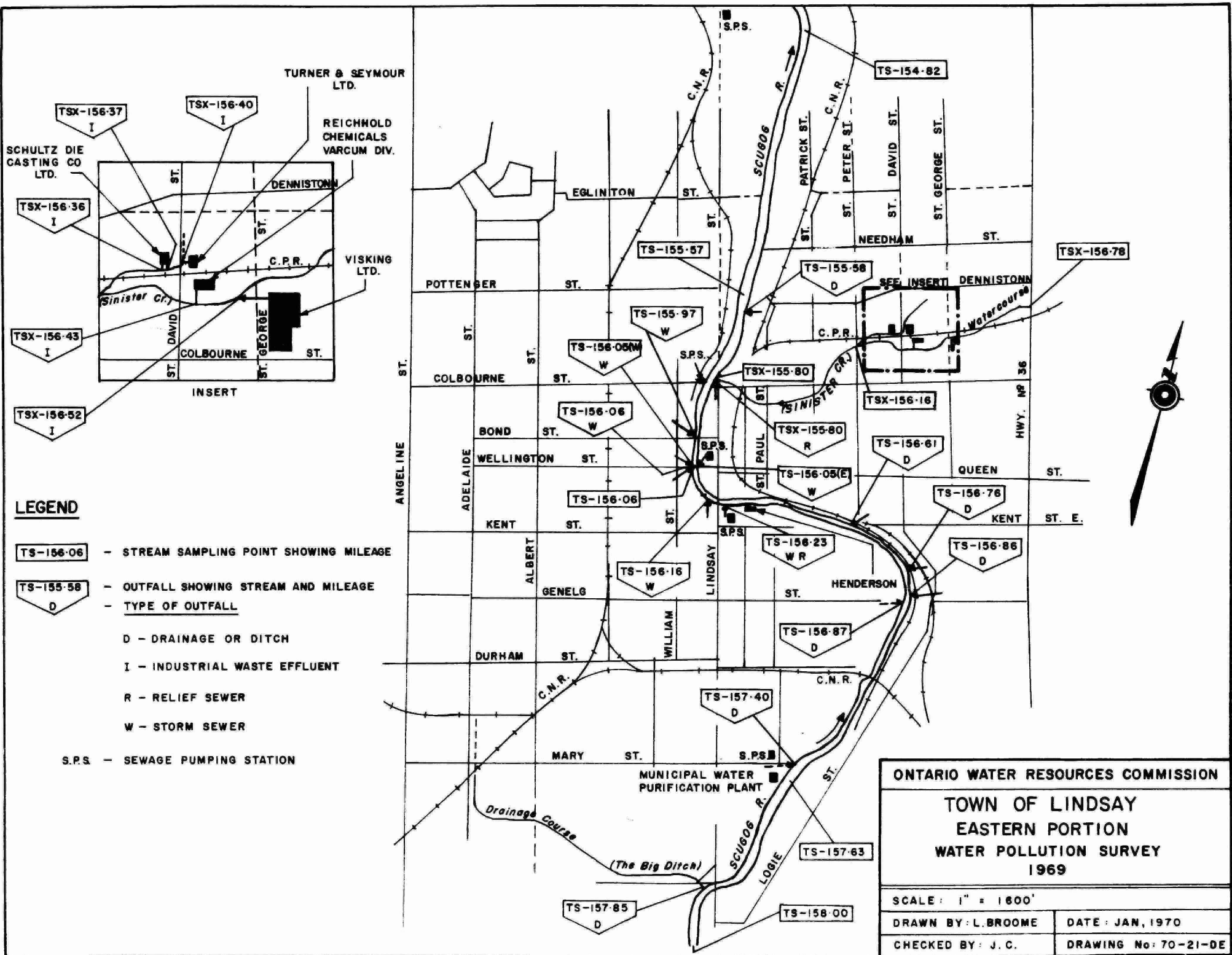
Town of Lindsay

Sample Point Number	Date	Description	5-Day BOD	Solids			Coliforms per 100 ml	ABS	pH at Lab	Sulphate
				Total	Susp	Diss				
TSX156.36I	June24/64	Outfall from Schultz Die Casting Co. Ltd. Plant to local tri- butary of Scugog River Cyanide = 0.8 Chrome = 11.0	3.2	382	28	354	30		7.7	276
	Sept19/69	Cyanide = 0 Chrome = 0	6.0	250	5	245	200	0.1	7.5	29
TSX156.37I	Sept19/69	See above Description					< 4			
TSX156.40I	Sept19/69	Outfall from Turner & Seymour Ltd., to local tributary of Scugog River Cyanide = 7.7	6.0	1390	670	720	< 10	1.0		
TSX156.43I	Sept19/69	Outfall from Reichhold Chemical Co., Varcum Div. to local tributary of Scugog River	0.6	300	5	295	< 4	0.1	6.8	

TABLE IV cont'd

Sample Point Number	Date	Description	5-Day BOD	Solids			Coliforms per 100 ml	ABS	pH at Lab	Sulphate
				Total	Susp	Diss				
TSX156.52	June24/64	Outfall from Union Carbide Limited Plant Visking Division to local tribu-	26.0	5004	106	4898	1,650,000		6.3	2990
	Sept19/69	tary	24.0	7350	10	7340	22,800,000	0.4	7.0	23

All analyses except pH reported in ppm unless otherwise indicated.





\*96936000009201\*